In the Claims:

1. (Amended) A polishing pad useful for polishing a surface of a semiconductor substrate, the polishing pad comprising:

   (a) a polishing layer having a polishing region configured to polish the surface of a workpiece; and

   (b) a plurality of grooves located in the polishing layer, each groove:

   (i) extending at least partially into the polishing region; and

   (ii) configured for receiving a portion of the polishing solution;

   at least some of the plurality of grooves each including a plurality of mixing structures configured to mix the polishing solution in that groove the plurality of mixing structures including a series of peaks and valleys.

2. (Original) The polishing pad according to claim 1, wherein ones of the plurality of mixing structures in each corresponding respective groove of the plurality of grooves have a periodic pitch.

3. (Original) The polishing pad according to claim 2, wherein ones of the plurality of mixing structures in each corresponding respective groove of the plurality of grooves have the same shape as one another.

4. (Original) The polishing pad according to claim 1, wherein each groove of the plurality of grooves containing ones of the plurality of mixing structures has a nominal depth and the periodic pitch is equal to the nominal depth to four times the nominal depth.

5. (Original) The polishing pad according to claim 1, wherein each groove of the plurality of grooves containing ones of the plurality of mixing structures has a nominal depth and the ones of the plurality of mixing structures in that groove have a height equal to 10% to 50% of the nominal depth of that groove.

6. (Amended) A method of chemical mechanical polishing a semiconductor substrate, comprising the steps of:

(a) providing a polishing solution to a polishing pad that includes a polishing layer having a polishing region and including a plurality of grooves, each groove:

(i) having an upper portion and a lower portion;

(ii) extending at least partially into the polishing zone; and

(iii) receiving a portion of the polishing solution;

at least some of the plurality of grooves each including a plurality of mixing structures operatively configured to mix the polishing solution in that groove the plurality of mixing structures including a series of peaks and valleys;

(b) engaging the semiconductor substrate with the polishing layer in the polishing region; and

(c) rotating the polishing pad relative to the semiconductor substrate to impart a flow into each groove of the plurality of grooves that interacts with at least some mixing structures of the plurality of mixing structures to mix the polishing solution located in the lower portion of that groove with the polishing solution located in the upper portions of that groove.

7. (Original) The method according to claim 6, wherein the polishing pad has a central region and step (a) includes providing the polishing solution proximate the central region.

8. (Amended) The method according to claim 6, further including the step of providing the polishing pad, wherein each groove of the plurality of grooves containing ones of the plurality of mixing structures has a nominal depth and a periodic pitch; and the periodic pitch is equal to the nominal depth to four times the nominal depth.

9. (Original) The method according to claim 6, further including the step of providing the polishing pad, wherein each groove of the plurality of grooves containing ones of the plurality of mixing structures has a nominal depth and the ones of the plurality of mixing structures in that groove have a height equal to 10% to 50% of the nominal depth of that groove.

10. (Amended) A polishing system for use with a polishing solution to polish a surface of a semiconductor substrate, comprising:

(a) a polishing pad comprising:

(i) a polishing layer having a polishing region configured to polish the surface of the semiconductor substrate; and

(ii) a plurality of grooves located in the polishing layer, each groove:

(A) extending at least partially into the polishing zone; and

(B) configured for receiving a portion of the polishing solution;

at least some of the plurality of grooves each including a plurality of mixing structures configured to mix the liquid in that groove the plurality of mixing structures including a series of peaks and valleys; and

(b) a polishing solution delivery system for delivering the polishing solution to the polishing pad.